

APRIL 2021

# THE NATIONAL PROVISIONER

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## SHOW-'CASE' FACILITY

CASE FARMS' AUTOMATION-DRIVEN RENOVATION AND EXPANSION OF ITS WINESBURG, OHIO, PROCESSING PLANT SENDS A CLEAR MESSAGE THAT THE INDUSTRY'S MUCH-ANTICIPATED "POULTRY PLANT OF THE FUTURE" IS HERE AND NOW.

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# AUTOMATION EFFICIENCIES

BY SHAWN K. STEVENS  
FOOD INDUSTRY COUNSEL LLC

Many meat processors have embraced the opportunity to maximize use of inputs and ensure the highest level of food safety during production by integrating critical software capabilities to leverage real-time actionable knowledge and provide insight and analytics for enhanced control, consistency and cost savings.

Stubbornly tight labor markets make the use of process controls and fully integrated operations management software systems increasingly necessary.

If a processor can automate a task and eliminate that workload from an employee to free that employee up to do something more productive, it doesn't take long to pay for a lot of automation, Andrew Lorenz, CEO of We R Food Safety!, said during the 2022 Food Safety Report: Tips to Navigate the Challenges Ahead webinar.

Processors that have automated or those looking to do so are finding supply chain issues affecting availability of chips and other necessary tech components, Lorenz said.

"A lot of things that we can use to automate like remote probes and things of that nature – we can't get the chips, we can't get the boards, can't get the antennas," he said. "A lot of times we're using wired technology versus wireless just because we can't get the wireless antenna."

He advised that processing operations should have a backup supply from a different vendor or a different model.

"When you're looking to automate, make sure you have a supply chain," he said. "I'll say that 10 times. Make sure you're supply chain is solid."

“IF A PROCESSOR CAN AUTOMATE A TASK AND ELIMINATE THAT WORKLOAD FROM AN EMPLOYEE TO FREE THAT EMPLOYEE UP TO DO SOMETHING MORE PRODUCTIVE, IT DOESN'T TAKE LONG TO PAY FOR A LOT OF AUTOMATION”

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Even more important than securing an operation's supply chain is securing plant data.

The trend toward processors embracing integrated software systems and access to operation-wide shared data has led to issues with hacking, Lorenz said.

"We're seeing an immediate split from that model," he said.

More companies are now "stove-piping" data in the different production phases, requiring new ways of allowing access to data, he said.

"There's ways to manage that risk by creating firewalls between different pieces of software, but it's definitely a departure from where we were aiming to be even three years ago," Lorenz said. "If you're buying software systems, my advice is look at what they will work with, what they'll integrate with and how flexible they are. And how secure they are"

"The day of total integration is gone," he said.

Processors must resolve cybersecurity issues that can affect labor and hiring, such as whether to allow employees remote access to monitor operations, said Tom Egan vice president of Industry Services for PMMI, the Association for Packaging and Processing Technologies.

If a hacker wants to break in and steal your temperatures it's not a big deal, but if they can break into a piece of software and get into your finance system and drain your bank that's a whole other story, Lorenz said.



# SHOW-CASE FACILITY

## CASE FARMS' AUTOMATION-DRIVEN RENOVATION AND EXPANSION OF ITS WINESBURG, OHIO, PROCESSING PLANT SENDS A CLEAR MESSAGE THAT THE POULTRY PLANT OF THE FUTURE IS NOW.

BY ANDY HANACEK  
EDITOR-IN-CHIEF

Over the past two years, nearly no human nor company in this world has been able to maintain the status quo and avoid changing course if they've wanted to survive or find success. The COVID-19 pandemic assured that things have changed permanently for many.

Yet, doing business successfully in the meat and poultry industries longer term requires the foresight and capability to recognize upcoming trends and execute against them to take advantage of the opportunities they bring — regardless of whether there's a worldwide pandemic or smooth sailing.

Enter Troutman, N.C.-based chicken processor Case Farms. In the mid-2010s, Case Farms identified an opportunity to diversify its business by partnering with a major foodservice customer, requiring significant commitment and investment through expansion and renovation of its Winesburg, Ohio, processing facility.

Chairman and owner Thomas Shelton explains that the company had designs on such a move, but hadn't "taken the plunge" (see sidebar Q&A with Shelton for more insights). However, the time was right in 2018, and the project to make the Winesburg facility a true showcase plant began.

"We would be working with a customer that required a change in bird size, which required changing everything from the picking room on," explains Sammy Caudle, general manager and vice president for Case Farms. "We were able to put in a new evisceration system, new chiller, rehang table, all the way through, to position ourselves for what we believe to be the market of the future."

The first thing one notices about the Winesburg facility, however, is that its footprint more than doubled — and looking at the rural area around it, one might wonder where all those extra employees live. Yet, even before the COVID-19 pandemic brought about the current workforce crisis, Case Farms acknowledged the labor recruitment issues and committed to investing in automation to meet the problem head-on. As such, Winesburg sets higher the bar on use of automation in chicken processing applications.

"COVID was starting to percolate a little bit, and the chicken business already was having trouble finding qualified plant employees, so we knew that if we didn't automate as much as possible, we were going to have a significant challenge on our hands here," Caudle says. "Then, we had to attract employees with a nice, steady flow and a good environment — so we wanted to make this as pleasurable of a chicken plant as it could be."

Automation at the level that Case Farms features in Winesburg makes it clear to employees that the company is concerned about their well-being and advancement, offering them an opportunity to take on tasks that aren't as ergonomically taxing or mentally tedious, says Charles Rigdon, senior vice president of Operations for Case Farms.

"We went above and beyond on the technology and the product flow, and we tried to automate as much as possible," he says. "To have our products go from processed to frozen and into storage with minimal human hands touching the box is amazing."

In addition, Case Farms was able to eliminate approximately 90 percent of the knives, scissors and other assorted cutting tools from the plant floor, explains Daniel Hatcher, Winesburg plant manager.



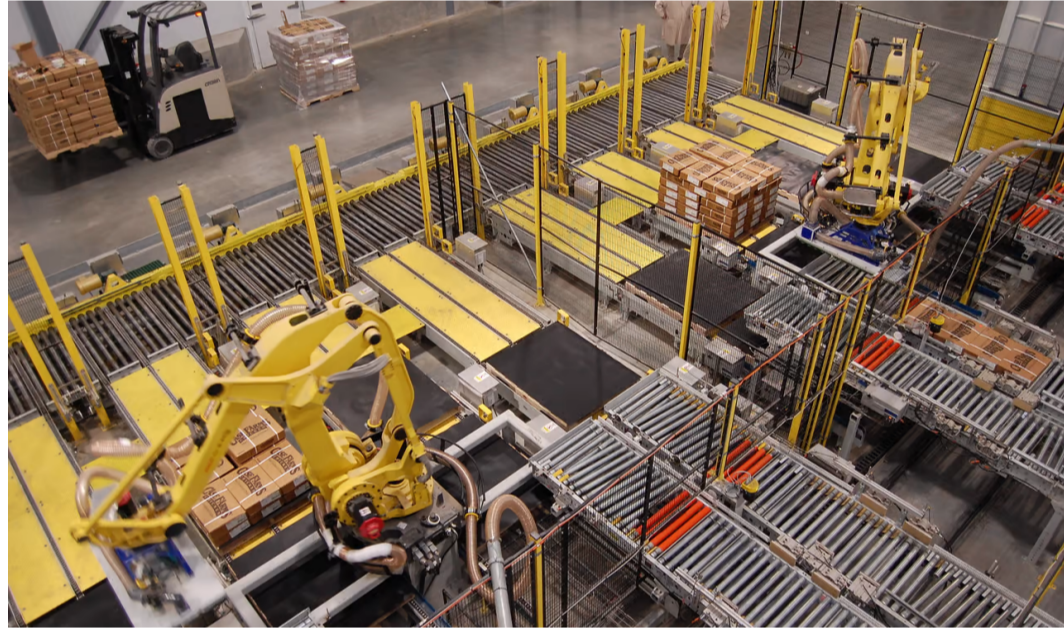
The processing floor of the Winesburg facility features automation to the extent that it doesn't seem with human action like a traditional chicken-processing plant might. Employees have been moved to safer, healthier roles while the machines do the ergonomically taxing work of handling and cutting the product.

"We took out all of that repetitive cutting, so, from an ergonomic standpoint, what we do now is far ahead of what we were doing before the expansion," he says. "For example, for workers who were doing tenders and deboning, the biggest change is that the physicality of those jobs is gone. There's no more working on a cone line. Now you become more of a grader or inspector to make sure quality is good or product is lined up on the conveyor correctly. It's a lighter physical load."

To that end, Caudle reports that the Winesburg plant now runs two automatic deboning systems with six employees overseeing that portion of the line — compared to more than 100 employees manning four cone lines with a variety of repetitive motion tasks before the renovation.

The expansion and renovation also focused on design that helped ensure food safety, says Rigdon, from overall plant layout to utility drops from the interstitial ceiling.

"The plant was laid out to handle the volumes so everything flows properly," he explains. "That way, product temperatures are kept in check, because product isn't sitting on the side in uncontrolled conditions, waiting to re-enter the product flow."



Robotic palletizers keep the workers at Winesburg from having to lift and move heavy boxes of frozen chicken.

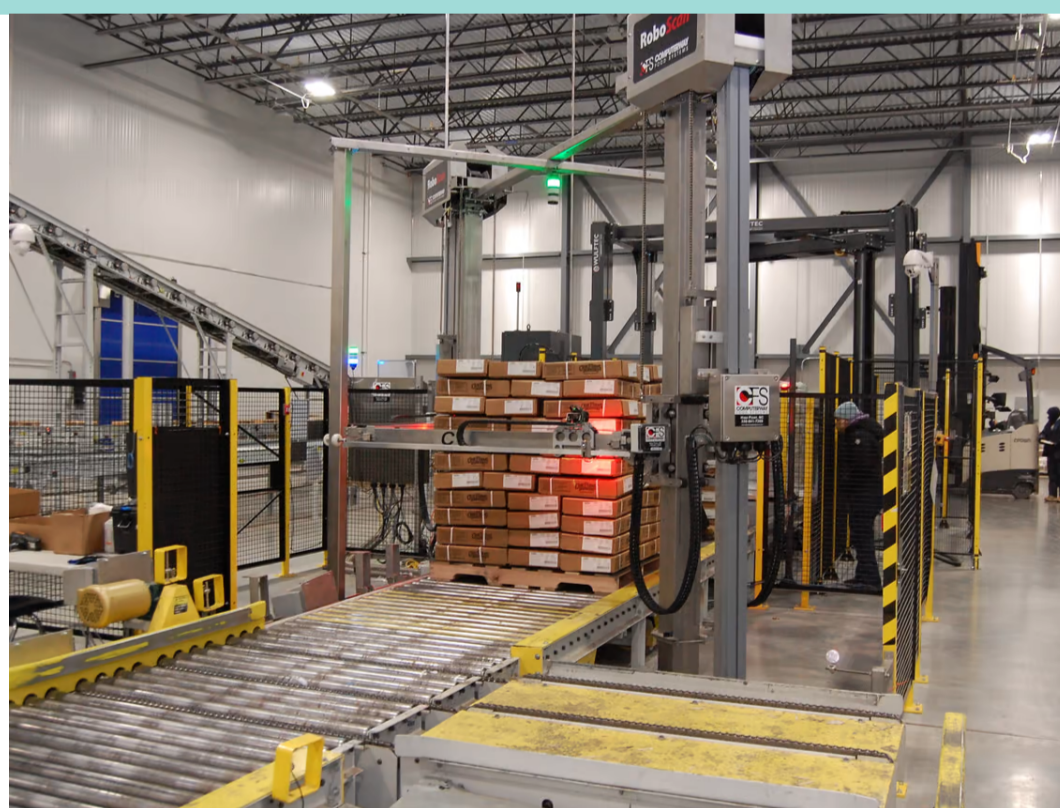
MOVING FORWARD, CASE FARMS WILL CONTINUE TO LOOK FOR WAYS TO MAKE THE WORK OF ITS EMPLOYEES EASIER AND SAFER, WATCHING FOR TECHNOLOGY AND AUTOMATION THAT COULD HELP THE COMPANY STAY AHEAD OF THE TRENDS.

Case Farms built the Winesburg plant to be state of the art, but also to handle projected growth from its foodservice customer, so the facility has plenty of room to expand capacity and increase line speed to match the growth the customer needs. It believes its investment in Winesburg not only represents the future of the industry, but positions it very nicely where the consumer trends have gone with regard to chicken consumption.

Caudle encapsulates the satisfaction the company has in Winesburg's growth moving forward when he says, "Long term, I believe this plant is positioned where everybody in the chicken business wants to be."

After decades of industry the challenge of poultry processing while addressing consumer demand, without forcing them to pay through the nose for it, the archetypical poultry plant of the future has actually arrived.

It's there for all to see, on display in Winesburg, Ohio.



An automated system is in place to scan the labels of all product cartons just before they hit the automatic shrink-wrapping system and are sent on their way to the customer. This technology would have been done in a traditional plant by workers with scanning guns scrambling around the pallet to scan every label before the pallet could move on in the process.

## CASE FARMS CHAIRMAN UPDATES NP AFTER COMPANY'S 35TH ANNIVERSARY

BY ANDY HANACEK  
EDITOR-IN-CHIEF



As part of *The National Provisioner's* visit to Case Farms' Winesburg, Ohio, processing facility, Andy Hanacek, editor-in-chief, was invited to sit down with Thomas Shelton, chairman and owner of Case Farms, to get an update on where the company is headed and how it has successfully grown in 35 years. What follows is a portion of their conversation:

**Hanacek: So, December of 2021 marked Case Farms' 35th anniversary. Can you give your general opinion on where the company is now versus where you thought it might be at this point when you founded the company?**

**Shelton:** Well, 35 years ago, ...the early years were quite difficult but interesting, to say the least. We did some strategic meetings back then to kind of project but we never really looked that far in advance. I've always said I didn't want to be the biggest company in the industry, I just want to be one of the best-managed. ... We've continued to grow, and it's been very steady growth.

**Hanacek: Do you believe Case Farms has done a good job being among the best-managed, best-run chicken companies in the country?**

**Shelton:** I do believe we have. One, yes, and I feel better about it today than I did even five years ago. We did some things we've done in that time reposition some of our product mix. We dedicated the plant that you visited (Winesburg) to [a major foodservice customer], and made a pretty significant capital investment, which was a move we had contemplated but hadn't taken the plunge. Finally, the time was right, and we decided to make the investment, and I think it was the right thing to do, because it gives us some more diversity in our business. So yes, I think the company definitely is better run today than it's ever been.

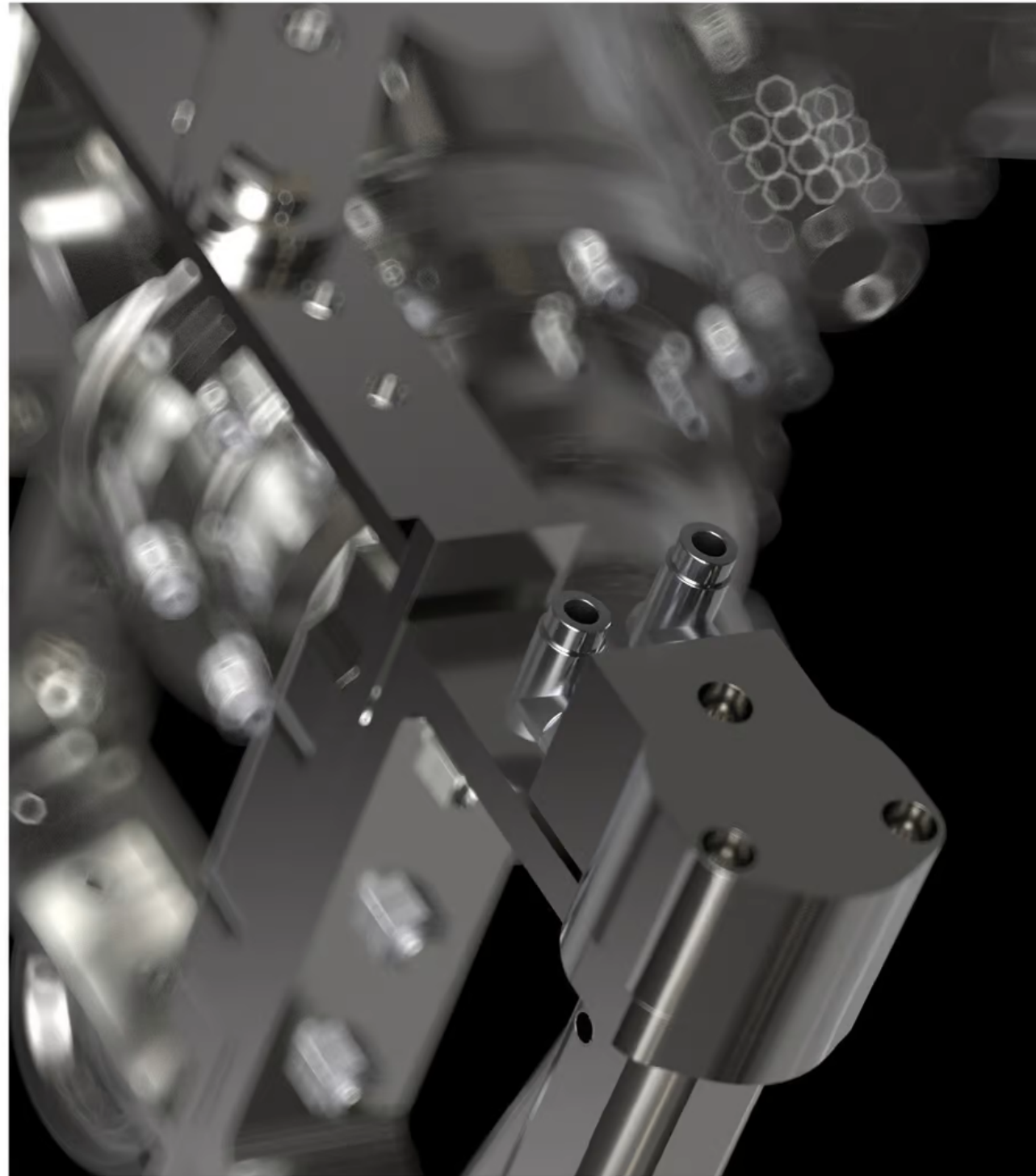
**Hanacek: The Winesburg plant was definitely a significant investment, and readers will get to read about all the renovations and expansions you made there, but is there anything Case Farms did there that you're particularly impressed by or proud of, that you wanted to mention?**

**Shelton:** I think one thing is the environment that we've created for the employees. People love working there. It's not the typical processing plant of the past in which working conditions were not good and employee facilities were not available. This is a place that people enjoy coming to work because it's an atmosphere that's different. Additionally, I want to mention that we built the rendering facility there a few years ago to solve an issue that had always been a challenge for us in Ohio. Prior to that facility, we had an outlet for the offal, but it wasn't a great situation. So having that plant has been a big plus for us.

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# CUTTING PROTEINS DOWN TO SIZE

Specific portion sizes enable consumers to follow dietary guidelines more easily, such as the U.S. Department of Agriculture's MyPlate principle of one-quarter of the plate protein, one-quarter whole grains, and one-half fruits and vegetables. (Photo courtesy of BeefItsWhatsForDinner.com)

## SIGNIFICANT EXPANSION OPPORTUNITIES AWAIT OPERATORS PROVIDING MEAT AND POULTRY SELECTIONS THAT MEET SHOPPERS' GROWING INTEREST IN PORTION CONTROL.

BY RICHARD MITCHELL  
CONTRIBUTING WRITER

Portion control is becoming an increasingly important meat and poultry sales trigger.

With greater numbers of consumers seeking proteins in sizes that meet their desire for more convenient, healthy, and economical eating, retailers that offer attractive portions are in position to boost activity while differentiating their selections from those of competitors, analysts note.

In a November 2021 consumer survey, 36 percent of respondents listed "helping to control weight" as a top reason why they pay attention to portion control. In addition, 30 percent of respondents listed portion control as a top factor for avoiding too much of certain foods, while 26 percent indicated that portion control was a main reason for helping them know how much they should be eating or drinking. The online survey of 1,000 Americans ages 18 and older was commissioned by the Washington, D.C.-based International Food Information Council and weighted for proportional representation of the population.

Portioned selections also are attractive to consumers seeking easy meal prep due to recipe fatigue, says Annette Maggi, president of Annette Maggi & Associates, Inc., a Minneapolis-based strategic nutrition marketing and communications consulting firm specializing in the interface between food manufacturers and retail grocers, and nutrition and regulatory issues.

The stronger shopper focus on weight management to shed "pandemic pounds" and their heightened interest in health conditions, including heart disease and diabetes, are boosting interest in portion control as well, she notes. "With more people working from home, portioned cuts allow them to make quick and healthy lunches, perhaps for just one individual," Maggi states. "Retailer meal kits or pre-portioned packs of meat and vegetables also make for quick and easy dinners."

Portion control cuts are especially appealing to smaller households by making it easier to cook for one or two persons, as well as to families with varying eating patterns, she notes. In addition, pre-portioned selections can make it simpler for protein-deficient individuals to incorporate more protein into their meals or snacks, which often includes adolescent girls and pregnant women, Maggi says.

## PORTION CONTROL CUTS ARE ESPECIALLY APPEALING TO SMALLER HOUSEHOLDS BY MAKING IT EASIER TO COOK FOR ONE OR TWO PERSONS, AS WELL AS TO FAMILIES WITH VARYING EATING PATTERNS

### MAKE SURE THE PRICE IS RIGHT

Retailers, meanwhile, can make smaller portion sizes even more appealing by incorporating per item rather than per pound pricing, says Jim Wisner, president of Wisner Marketing LLC., a Gurnee, Ill.-based retail consultancy. Such pricing can effectively spotlight the lower price of supermarket meat and poultry versus comparable foodservice menu selections, he states, noting that "instead of spending 20 dollars at a restaurant for steak, consumers can now buy the same selection at stores for five, six, or 10 dollars."

Pricing by the piece also creates the perception that the portion cuts are proportionally less expensive than meat and poultry in larger packs with the pound pricing, Wisner says. "Portion control is a huge deal and a way to get around some of the meat cost issues," he says, noting that purchasing meat and poultry for a "unit of one" reduces waste as well. Maggi adds that per item pricing also helps shoppers quickly consider the per person meal cost.



Filets, such as pork fried cuts, are among the selections best suited for portion control preparation. (Photo courtesy of the National Pork Board)



Retailers can simplify meal preparation by merchandising specific portions of meats in accordance with recipes, such as stir fry. (Photo courtesy of 210 Analytics LLC)

It is also important for merchandisers to offer portioned cuts to help meet consumers' interest in a variety of beef options, says Shalene McNeil, executive director, nutrition science, health and wellness, for the Centennial, Colo.-based National Cattlemen's Beef Association (NCBA).

A variety of beef selections, including strip steak, flank steak, and tenderloin, are attractive candidates for portion control, says Jessica Lancaster, NCBA director, product quality research. She notes that merchandisers can offer such options in pre-portioned packaging in meat cases or by having supermarket butchers slice the cuts for individual needs.

"The meat counter continues to evolve, and changes can be seen through innovations in meal kit preparations and other opportunities to simplify meal planning through portion-controlled heat-and-eat and ready-to-go options," McNeil states, adding that "there is an opportunity for increased awareness for portioned products."

Merchandisers can spark further interest in such selections by having messaging on packages that detail how the portioned meats can fit into shoppers' eating plans, Maggi says, which includes supporting consumers who are seeking to add specific amounts of proteins to their diets while reducing carbohydrates.

### OPERATIONAL OBSTACLES STILL AROUND

Marketing portion control options, however, can be tricky. Although certain cuts of meat and poultry, such as pork chops, are easy to portion in stores while retaining quality, other selections, including roasts, offer better taste when cooked as a whole piece, Maggi notes.

Because of different compositions, it also can be arduous to pre-portion all meat and poultry, Wisner says, noting that filets are the best option "from a weights and measures standpoint."

Merchandisers may face difficulties in determining the optimal amounts to offer as well, he says. "You can buy premade burgers in all kinds of sizes but may run into problems when distinguishing what is a 'portion' and what is a 'helping' for other selections," Wisner says. "A 5-ounce serving is okay for me, but someone else might want an 8-ounce serving."

Nevertheless, the demand for portion control products is likely to increase, particularly because providing family members with individual portions makes it easier to meet their specific meal preferences and for people to dine at home at different times, Wisner says.





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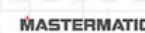
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## SURFACE REDNESS DECLINES WITH THE AEROBIC REPACKAGING OF DARK-CUTTING STEAKS PREVIOUSLY PACKAGED IN NITRITE-EMBEDDED PACKAGING

M. L. DENZER<sup>1</sup>, G. G. MAFI<sup>1</sup>, D. L. VANOVERBEKE<sup>1</sup>, R. RAMANATHAN<sup>1\*</sup>

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\*CORRESPONDING AUTHOR

Nitrite-embedded packaging utilizes nitrite embedded in the film (Siegel, 2011). When nitrite comes in contact with meat, a series of biochemical reactions take place, and finally, a bright red pigment called nitric oxide myoglobin is formed (Siegel, 2011). A bright red appearance is preferred by consumers at retail (Carpenter, Cornforth, & Whittier, 2001). Dark-cutting beef has a darker appearance, limiting its use in retail settings based on consumer perception. Nitric oxide myoglobin formation in nitrite-embedded packaging has been shown to improve the redness of dark-cutting beef, and the addition of rosemary to nitrite-embedded packaging further improved the appearance of dark-cutting beef compared to polyvinyl chloride (PVC) film (Ramanathan et al., 2018). There is limited knowledge on the effects of repackaging dark-cutting steaks into PVC from the nitrite-embedded packaging system.

Dark-cutting (pH = 6.21-6.77) and USDA Low Choice loins (pH = 5.53-5.59) were obtained from a commercial processing facility (Creekstone Farms, Arkansas City, Kan.) and transported back to Oklahoma State University on ice. Dark-cutting loins were enhanced with rosemary (0.1%) and glucono delta lactone (0.5%). Steaks were sliced from the enhanced and nonenhanced dark-cutting sections. Nitrite-embedded packaging was used for the enhanced dark-cutting steaks, and USDA Low Choice and nonenhanced dark-cutting steaks were packaged in vacuum packaging. After a dark storage of 3, 6 or 9 days, the steaks were removed from their packaging and placed in PVC (15,500-16,275 cm<sup>3</sup> O<sub>2</sub>/m<sup>2</sup>/24 h at 23<sup>0</sup>C, E-Z Wrap Crystal Clear Polyvinyl Chloride Wrapping Film; Koch Supplies; Kansas City, Mo.) for 6 days of retail display. The HunterLab spectrophotometer was used to measure retail color every 12 hours along with six trained panelists evaluating surface discoloration [1 = no discoloration (0%), 7 = extensive discoloration (81-100%)]. The nitric oxide myoglobin content during retail display was determined using the reflectance from the HunterLab spectrophotometer. Chroma was determined to represent the red intensity of the surface of the steak (AMSA, 2012).

Upon repackaging, the enhanced dark-cutting steaks had similar redness and red intensity ( $P > 0.05$ ) as the USDA Choice steaks at hour 0 of retail display. The repackaged enhanced dark-cutting steaks decreased ( $P < 0.05$ ) in redness and red intensity within 12 hours of retail display compared to the USDA Choice steaks. Nitric oxide myoglobin content loss paralleled with the decrease in redness in retail display. Enhanced dark-cutting steaks were more ( $P < 0.05$ ) discolored than the USDA Choice and nonenhanced dark-cutting steaks at 12 hours of display for all dark storage periods. Additionally, by the end of display, the enhanced dark-cutting steaks had greater ( $P < 0.05$ ) discoloration than USDA Choice and nonenhanced dark-cutting steaks for steaks stored in dark storage 3 or 6 days.

In conclusion, the enhancement of glucono delta-lactone and nitrite-embedded packaging resulted in the improvement of the color of dark-cutting steaks. The process of repackaging the enhanced dark-cutting steaks in PVC resulted in greater surface discoloration and loss of redness. Therefore, we concluded that the anaerobic nitrite-embedded packaging system improves redness of dark-cutting steaks. However, repackaging in traditional PVC is not an option for color stability.



### REFERENCES

AMSA (2012). Meat color measurement guidelines. Champaign, IL, USA: American Meat Science Association.

Carpenter, C. E., Cornforth, D. P., & Whittier, D. (2001). Consumer preferences for beef color and packaging did not affect eating satisfaction. *Meat Science*, 57(4), 359-363. doi: [https://doi.org/10.1016/S0309-1740\(00\)00111-X](https://doi.org/10.1016/S0309-1740(00)00111-X)

Ramanathan, R., Mitacek, R. M., Billups, S. D., Jadeja, R., Pfeiffer, M. M., Mafi, G. G., & VanOverbeke, D. L. (2018). Novel nitrite-embedded packaging improves surface redness of dark-cutting longissimus steaks. *Translational Animal Science*, 2(2), 135-143. doi: 10.1093/tas/txy006

Siegel, D. (2011). An update on packaging fresh meat with nitrite containing film. 64th Reciprocal Meat Conference, June 22. Kansas State University (Presentation).

### FOR MORE INFORMATION

Repackaging Nitrite-Embedded Dark-Cutting Steak in Aerobic Polyvinyl Chloride Film Decreases Surface Redness  
 Authors: Morgan L. Denzer, Gretchen G. Mafi, Deborah L. VanOverbeke, Ranjith Ramanathan. *Meat and Muscle Biology* 5(1). p.1-12. Doi: <https://www.iastatedigitalpress.com/mmb/article/id/12944/>

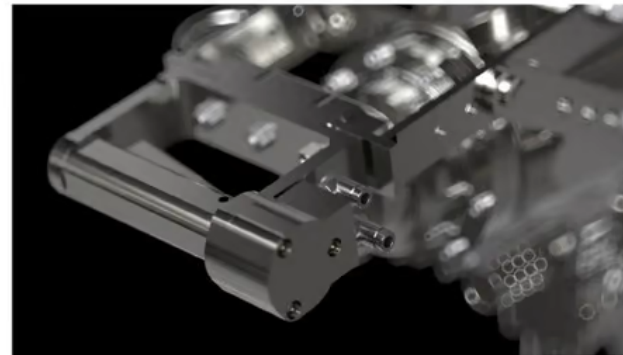
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# USING METRICS TO TELL A STORY

BY PHILLIP SLATER  
CONTRIBUTING WRITER

## THE BEGINNING: DRUCKER AND RIDGWAY

Everyone reading this will have no doubt heard the expression, “what gets measured, gets managed” – or something similar. The original quote usually is attributed to Peter Drucker’s 1954 book *The Practice of Management*.

Perhaps more interesting is the somewhat lesser-known full quote, “What gets measured gets managed, even when it is pointless to measure and manage it, even if it harms the purpose of the organization to do so.”

Drucker wasn’t simply encouraging people to measure their actions and outcomes; he was warning us about the dangers of not being fully aware of the organizational impact of what we were measuring.

There is another famous maxim for management measurement: “Not everything that matters can be measured, and not everything that we can measure matters.” This is attributed to V.F. Ridgeway in a paper published in 1956.

Read this in conjunction with Drucker’s comment, and we begin to see a picture emerging. We may very well be measuring things that don’t really matter simply because we can measure them, and that the act of measuring and managing those things may actually “harm the purpose of the organization.”

“WITH SPARE PARTS INVENTORY, MANAGERS WILL OFTEN SET A GOAL FOCUSING ON A REDUCTION IN INVENTORY VALUE BY A SPECIFIC TARGET DATE. ON THE SURFACE THIS IS NOT UNREASONABLE.

## FURTHER INSIGHT: GOODHART’S LAW

The thinking about measurement of actions and outcomes was further evolved when a British economist, Charles Goodhart, wrote in 1975 what became known as ‘Goodhart’s Law.’ The simplified version states “When a measure becomes a target, it ceases to be a good measure.”

Essentially, Goodhart is warning us about the law of unintended consequences. That is, often when we use a measure targeting a specific goal, people will aim to achieve that goal regardless of the consequences. Tying that back to Drucker, even if it harms the purpose of the organization. Or perhaps, even if it doesn’t actually achieve the goal for longer than the point in time of the measurement.

Consider this example.

With spare parts inventory, managers will often set a goal focusing on a reduction in inventory value by a specific target date. On the surface this is not unreasonable.

There is (hopefully) a management expectation that the team working on this will take sensible actions that will reduce the value of the inventory (achieving the goal) without damaging the ability of the organization to fulfil its mission with that inventory.

However, what happens when the metric of inventory reduction becomes the target without consideration of longer-term consequences?

Then, companies experience what is often referred to as a ‘slash and burn’ approach to inventory reduction. People will remove whatever they can, however they can, just to achieve the goal. Sometimes this will leave the operational part of the business short of necessary spare parts, resulting in extended downtimes and inefficient labor utilization. Thus harming the purpose of the organization.

This type of action is most prevalent as the deadline approaches, maybe the end of the fiscal year or perhaps the quarter. The goal is to achieve the metric target at that singular point in time, with little thought about what happens next month of quarter.

A slightly less damaging approach occurs when, in the last month of the fiscal year, people stop reordering spare parts that need replenishment. This results in a reduction in the value of the ‘stock on hand’ for that point in time – the end of the reporting period. At the beginning of the next period all those orders are now placed, and the inventory goes back to its previously bloated state. Thus, not achieving the goal at all.

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## USE METRICS TO TELL THE STORY

The key to managing spare parts inventory is to use a suite of metrics that will tell the story of what happened, not just the point-in-time result.

Like all good stories, we need continuity. So, the metrics need to be reported monthly. And to borrow another phrase, ‘the trend is your friend’ so charts work better than just numbers.

Returning to the end-of-year example above, reporting the value of both inwards and outwards storeroom transactions each month, in addition to the end-of-year example above, helps tell the story of how the result was achieved. If there is a sudden reduction in the value of inwards goods or a sudden surge in outwards goods while the stock on hand drops to the target level, then you know that while the goal was achieved at that point in time, it is probably not sustainable.

Goal setting and metrics is one of those tasks that can seem to be straight forward. However, setting metrics that tell the story and direct people to actions that won’t harm the organization requires consideration of the consequences. Ignore the guidance of Drucker, Ridgway, and Goodhart at your peril.



# SANITIZATION

## TAKEAWAYS

BY ELIZABETH FUHRMAN  
CONTRIBUTING WRITER

Sanitation and cleaning in meat processing plants are both required to ensure a clean environment. Cleaning is done by picking up debris from processing surfaces and discarding it, then typically using water to remove smaller debris, applying a detergent, scrubbing or washing areas, and then rinsing. Sanitizing is the next step in the process that aims to eliminate microbiological contaminants.

“While cleaning is important, it does not create a sanitary environment when completed without a sanitation step,” explains Abbey Davidson, outreach specialist at the American Association of Meat Processors, Elizabethtown, Pa. “Vice versa, surfaces cannot be sanitized effectively if cleaning is not completed. I do believe that processors create an environment where employees are trained on what to do to complete these tasks, but I firmly believe you cannot train enough, and the ‘why’ behind the sequence of these steps and the importance of each can always be reiterated.”

Each processing environment creates different challenges too.

“Processing environments where ready-to-eat product is produced would really need to focus on food contact surfaces, but just as importantly focus on non-food contact surfaces to ensure *Listeria monocytogenes* is not present or cannot proliferate in the plant,” Davidson says. “For processors where both raw and ready-to-eat product are produced in the same area, it is vital that a cleanup occurs between each type, as pathogens of concern can cross-contaminate each other type. Most importantly, raw meat associated pathogens could contaminate ready-to-eat products.”

The important takeaways for sanitation crews, though, are to make sure they do not work if they have a foodborne illness, to ask questions if they don’t understand something, and to clean and sanitize processing areas by following their company’s procedures.

The major key tips and practices for sanitation supervisors to remind their teams to wear proper gear during cleaning and to ensure the chemicals that are being used are at the appropriate concentration and checked frequently. Additionally, Davidson suggests completing an inspection of the area after cleaning and sanitizing is complete, so that any area that were missed can be properly treated while the cleaning equipment is still out.

**“THE MAJOR KEY TIPS AND PRACTICES FOR SANITATION SUPERVISORS TO REMIND THEIR TEAMS TO WEAR PROPER GEAR DURING CLEANING AND TO ENSURE THE CHEMICALS THAT ARE BEING USED ARE AT THE APPROPRIATE CONCENTRATION AND CHECKED FREQUENTLY.”**

If processors are receiving sanitation chemicals from an international source, there is a chance of running into supply issues. Additionally, if the same sanitizer is used in a facility for a prolonged period of time, there is a chance that any present microbes may develop a resistance to the sanitizer, making it ineffective.

“Completing aerobic plate count tests would demonstrate if the cleaning and sanitizing practices are effective at the facility,” Davidson explains. “Additionally, a chlorine-based sanitizer would be a great backup if chemical sources are low, or if microbial resistance is present. This could be an unscented bleach, mixed to 100 PPM and applied to equipment after cleaning is complete.”

Recently, ozone sanitation has been a technology that has been useful in improving sanitation in facilities. “There originally was a significant cost to ozone sanitation and there still may be, but there are now ways to make it cheaper on the facility,” Davidson adds.



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# STREAMLINED PRODUCTION

The global meat processing equipment market is anticipated to grow, fueled by the world's increasing population of meat-eating consumers with high disposable incomes raising demand for meat products.

More than two out of three (68%) of shoppers say they would like to see more value-added meat products, according to the recently released Power of Meat 2022 report.

Consumer demand for new meat products coupled with ongoing tight labor markets for meat processors can make a processing plant equipment upgrade an attractive consideration.

"Automation improves the efficiency of workers on the line and may reduce the numbers of employees needed," Dr. Lynn Knipe said. "This applies to both the slicing and dicing processes, as well as sanitation of the equipment."

Knipe — an Ohio State University associate professor who orchestrates processed meats extension programs — said the new technology being introduced in processing equipment can be complex, which may mean fewer workers will be needed. However, the remaining workers on the floor will need to be well trained to operate and maintain the new equipment.

REGARDING CLEANING AND SANITATION, AUTOMATION STREAMLINES THE CLEANING PROCESS WITH LESS HUMAN HANDLING, WHICH IMPROVES FOOD AND WORKER SAFETY, COMPARED TO DISASSEMBLING AND HAND-CLEANING SHARP BLADES.

"For the actual processes, automation of slicer loading, loading finished slices into the packaging machine, boxing and palletizing can assist workers ergonomically," he said.

"Regarding cleaning and sanitation, automation streamlines the cleaning process with less human handling, which improves food and worker safety, compared to disassembling and hand-cleaning sharp blades."

While upgrading to automate the production process boasts its advantages, proper maintenance of existing machinery can go a long way toward keeping a meat processing line running efficiently, Knipe said.

"Buying the latest in slicing/cubing equipment technology does not guarantee perfect slices and the best slicing yields," he said. "The density of the product to be sliced and the selection and care of the slicing blades may be as important, if not more, than buying the best slicer."

Predictive maintenance enabled by automated processing lines helps to continuously optimize use of inputs, said Tom Egan vice president of Industry Services for PMMI, the Association for Packaging and Processing Technologies.

New technologies typically use better materials and designs for making equipment, which should result in reduced maintenance costs for processing operations, Knipe said.

"Equipment manufacturers seem to be working closer with their customers to properly train workers to set up, operate and maintain equipment to maximize the efficiency and life of the equipment, using a preventative maintenance approach," he said. "Some equipment manufacturers offer audits of equipment and processes to determine if processors are optimally using and maintaining their equipment."

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# CHECKWEIGHING GETS SMARTER



BY PIERRE DIGIROLAMO, DIRECTOR, FORTRESS TECHNOLOGY

Verifying the weight of packaged food commodities continues to evolve rapidly. In addition to inspecting underweight and overweight packages and ensuring compliance with net content regulations, deploying smart checkweighers at the end of food processing lines can provide a source of untapped Quality Assurance, waste reduction and brand protection.

The global market outlook for automated checkweighing is strong. Rapid growth is on the horizon, with industry reports suggesting 4.6% CAGR each year between 2019 and 2027. The projected expansion of this sector is likely to be boosted by a number of factors.

For many FMCG manufacturers, the explosion in lifestyle-led wellbeing and ready-to-go food packs is swinging the scale towards advanced and accurate precision checkweighing. From a financial perspective, the price hikes, squeezes on profit margins and productivity-driven investments make quality checkweighing all the more imperative.

New and exciting checkweighing technology is a breakthrough advancement for food producers and robust equipment can battle price volatilities across the domestic and global supply chain. Protecting consumer-brand reputation and meeting legislative weight requirements, the right machinery can target operational inefficiencies, including upstream product giveaway, non-conforming food packs and packaging waste.



## SAVING GOOD FOOD GIVEAWAY

Giveaway has been a long-accepted practice in food factories, rapidly leading to lost profits. Many producers are notorious at overcompensating in the filling phases to avoid falling foul of international and domestic weight legislations.

Yet, most modern checkweighers have refined their process by allowing machinery to adjust autonomously. When used in the right way, the upfront cost of a checkweighing machine can deliver ROI expeditiously. By digitizing the checkweighing process, manufacturers can achieve greater productivity and save thousands of dollars in product giveaway.

Besides reducing false rejects and product waste, the use of modern network technologies also allows saving giveaway via automatic data transmission. With integrated data collection software, everything from trends, pack rates and live OEE data is instantly reported and QA personnel can utilize this information to fine-tune production line performance.

For example, if a meat manufacturer finds inconsistencies in the size of meatballs, this indicates that the processing machinery is not running accurately. Beyond highlighting this fault, precision systems and weighing algorithms can provide a controlled feedback signal to upstream automation equipment used to portion food products. This signal specifies when to increase or decrease the fill quantity accordingly, eliminating the need for human intervention and creating an overall more seamless process.

**NEW AND EXCITING CHECKWEIGHING TECHNOLOGY IS A BREAKTHROUGH ADVANCEMENT FOR FOOD PRODUCERS AND ROBUST EQUIPMENT CAN BATTLE PRICE VOLATILITIES ACROSS THE DOMESTIC AND GLOBAL SUPPLY CHAIN.**

## MAINTAINING VALUE DURING 'SHRINKFLATION'

Deviating from a recipe also affects the value of products; 'free-from' ranges are classic examples of where formulation conformity is critical. Dietary-restricted ingredients can cost over 150 percent more than conventional products, placing a greater emphasis on controlling waste and product giveaway.

Having already encountered the pandemic-related supply chain disruptions, another surge in prices is anticipated for essential commodities, such as grains, sugar, soybeans and corn. It is expected to affect retailer pricing strategies for all types of products, including bakery items, convenience meals, pet food and wellbeing products.

Another common practice to counteract price rises in recent years is to reduce pack sizes. Dubbed 'Shrinkflation', food producers firmly lay the blame on rising raw material costs for resizing packs. Applied to chocolate bars, cereal boxes, coffee, fruit juice, sausages, beers and even toilet rolls, rather than raise the retail price, which consumers instantly spot, manufacturers downplay the issue by downsizing the product. Of course, when a reputable brand makes the decision to put less product into a container, it places even greater pressure to adhere to net weights.

## WEIGHT MANAGEMENT MARKET ON GROWTH CURVE

Globally, the weight management market is projected to grow at 8.6 percent CAGR in the next five years. For this expanding market, weight checking, and uniformity is a non-negotiable to protect to authenticity, product integrity and brand reputation.

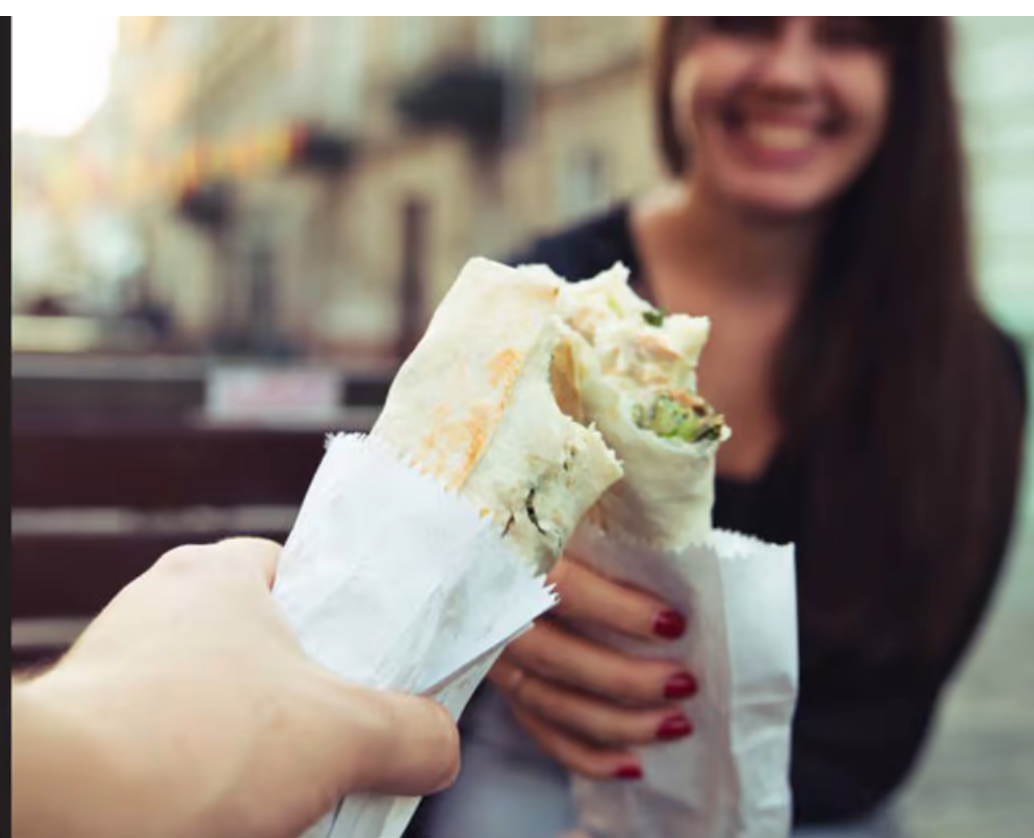
Sophisticated software adds full transparency to packing processes by tracking each unit weight and meeting the set parameters. Investing in the utilization of automation tools, 'smart' inspection and checkweighing machinery ensures strict weight targets are adhered to and that waste remains tightly controlled. In turn, this maintains food safety and production efficiency.

Combination checkweighing and inspection systems bring food plants even closer to the Smart Factory vision, whereby connected devices work alongside each other to reduce contamination, ensure food safety compliance and boost traceability and efficiency. Smart checkweighers are more than a mandatory necessity; they are tools to capture untapped ROI by reducing product giveaway, minimizing food waste and striving for a more productive performance line.





# healthy VERSUS indulgent foods



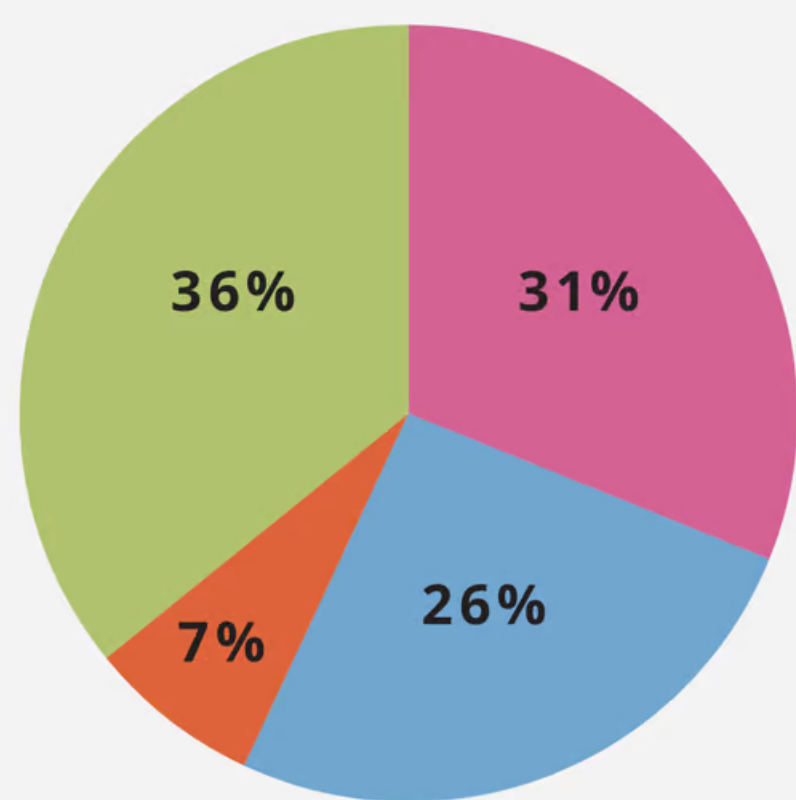
## CONSUMERS WANT TO HAVE THEIR CAKE AND EAT IT TOO.

To look toward the future of popular food trends, we surveyed 21-40-year-olds on what they've been eating for the past two years and what the next year looks like. These young consumers plan to balance their comfort food and snacking consumption with more plant-based and functional foods this year.

01



## indulgent food trends reigned supreme



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- 1-2 days per week
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The comfort food trend has been growing over the past two years, but it will stay about the same in 2022.

**42%** of respondents reported eating more comfort food over the past two years.

**33%** of respondents plan on eating more comfort food in the next year.

**39%** of respondents reported eating about the same level of comfort food over the past two years.

**44%** of respondents plan on having about the same level of comfort food in the next year.

These top seven comfort foods were favorites across age groups, with some slight differences in order.

	Total	21-30 Years Old	31-40 Years Old
Pizza	74%	70%	<b>78%</b>
Fried chicken	42%	<b>47%</b>	37%
Tacos	41%	39%	<b>44%</b>
Hamburger/ cheeseburger	29%	27%	<b>32%</b>
Spaghetti/ pasta and meat/ meatballs	29%	<b>37%</b>	21%
French fries	26%	<b>29%</b>	22%
Macaroni and cheese	26%	<b>28%</b>	23%

## finding the balance between health and indulgence

Consumers have been eating comfort foods and snacks over the past two years, and they have no intention of stopping. However, health-conscious food trends like plant-based alternatives and functional foods will move to the forefront in the next year as these younger consumers look to make healthier choices.

For more information on key consumer trends, contact us at

[insights@thefoodgroup.com](mailto:insights@thefoodgroup.com)

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# 2022 SOURCEBOOK



PUBLISHER'S PAGE

## WELCOME TO THE NATIONAL PROVISIONER'S SOURCEBOOK EBOOK

As the go-to source of information for the meat & poultry industry, we at *The National Provisioner* continually strive to make it easy for you to find the equipment and material suppliers that can help your business.

We created this new eBook version of the Source Book to mesh with today's digital on-the-go reality. While the format may have changed to keep up with the times, the reliable and up-to-date information it provides is the most relevant in the meat processing industry. We have organized this eBook – and our continuously updated online Source Book – into these sections:

- Casings
- Construction, Sanitation & Maintenance
- Cutting & Boning Equipment
- Ingredients
- Instrumentation, Computers & Controls
- Packaging Materials & Containers
- Processing & Packaging Equipment
- Rendering Equipment
- Services, Supplies & Merchandising
- Shipping & Delivery
- Slaughtering Equipment

You can also search the same categories online at [www.provisioneronline.com/sourcebook](http://www.provisioneronline.com/sourcebook).

This comprehensive resource is here to serve you 24/7 to save you and your company time and help keep you current with the latest technologies. We actively work with the industry's top suppliers to keep their information up-to-date so researching and connecting with them is a simple, straightforward process.

Thank you for the hard work that you do. It's our hope that the information that follows will make your job easier and help your company's processes be more efficient and productive.

**Chris Luke**  
Publisher



**Chris Luke**  
Publisher  
*The National Provisioner*

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## CONSTRUCTION, SANITATION & MAINTENANCE

Food safety is a priority for any meat and poultry processor, and companies invest heavily to produce products free of pathogens, defects and foreign materials. Food safety, though, begins with the facility itself. A plant that is not constructed or retrofitted for food production or has not been maintained can cause dangers, both to the food and to the employees. Likewise, a plant and all of its equipment must be sanitized regularly to prevent pathogens from growing in harborage areas. Equipment must be maintained, and spare parts must be replaced regularly to prevent a machine from breaking down, causing costly production delays. A processing facility that has been designed for efficiency and food safety, and equipment that is properly cleaned and maintained, will help processors grow sales and reduce the risk of recalls.

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Diesel and electric units are available. The diesel-powered NLB 535 DHW-TRA-SA delivers flow of 9 gallons per minute at pressures up to 4,950 psi, and features a 420,000 BTU burner unit. It comes on a single-axle trailer (with a DOT-compliant frame) for mobility.

The skid-mounted NLB 335 EHW-SKID-NG is electrically powered, and produces 15 gallons per minute of hot water at 3,500 psi. This high-efficiency, low-power unit has a 40 hp motor and a 700,000 BTU natural gas burner.

Both models have features not typically found in hot water units, such as integrated water lubrication lines and a 75-micron inlet strainer (instead of the traditional filter) that can be rinsed and reused. The rupture disk, a common replacement part, has been replaced by a self-resetting pop-off valve.

Either unit can easily be connected to a header system via a drop-down hook-up, to provide hot water wherever it's needed without running hoses all over the floor. Experienced NLB engineers can design a header system to meet a plant's unique requirements. Replacing multiple pressure washers with a single hot water unit from NLB helps meat processors improve cleaning efficiency with less downtime and maintenance. This lets them maintain their high levels of sanitation at a lower operating cost.





## PROCESSING & PACKAGING EQUIPMENT

In even the smallest meat processing plants, machinery is doing the work that butchers used to do by hand or with manually operated equipment. Processing and packaging equipment help to greatly improve the output of a meat facility, enhance food safety and produce a more consistent product. All of the equipment in a facility, from stuffers, grinders, freezing and chilling equipment, ovens, slicers and smokehouses to specialty equipment like clippers, ham netting equipment and fryers, make companies as efficient as possible. Similarly, packaging equipment like rollstock machines and form-fill-seal machines make packages that offer a high degree of food safety and long shelf life.

This category also includes all of the necessary parts that keep meat processing and packaging equipment running smoothly: motors, gauges, gaskets, lubricants, etc.

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PROCESSING & PACKAGING EQUIPMENT



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PROCESSING & PACKAGING EQUIPMENT



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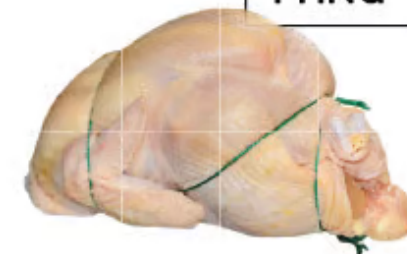
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## CASINGS

Casings are an important part of the production of cured meat products, from sausages to deli meats. They help products retain their form during the production, cooking and cooling processes. If it's a natural casing, it can help a sausage deliver a satisfying "snap." Some casings can even impart a flavor to the meat during the cooking process. Casings could be natural, collagen or made with plastic, and they could be peeled off prior to packaging or edible. The type of casing a processor chooses will depend on the consumer's customer base.

[CLICK HERE TO VIEW ALL CASINGS COMPANIES](#)



## INGREDIENTS

Ingredients play many important roles in a meat product. They can, in the case of cheese, peppers or a marinade, create a flavor combination that appeals to consumers. The types of ingredients that can be added as an inclusion to a product like a sausage or a snack stick are varied, and processors are encouraged to experiment to develop creative new flavors.

Functional ingredients like phosphates or nitrites do not contribute to the taste of a product, but they can provide important benefits such as increased product quality, enhanced food safety measures or increased shelf life. There are also natural alternatives to those established ingredients for consumers who are looking for "clean-label" solutions. Other products that fit into this category are batters and breadings, sweeteners, starches and extenders.

[CLICK HERE TO VIEW ALL INGREDIENT COMPANIES](#)



## PACKAGING MATERIALS & CONTAINERS

Packaging plays many roles. The obvious use is to protect the meat from external contamination. A good retail package provides visual appeal that catches the consumers' eye and provides the information that they want to know. In the case of modified-atmosphere packaging, it can prevent spoilage and extend shelf life.

Packaging types and materials are constantly evolving, and processors need to keep abreast of current packaging trends. Sustainability is more important than ever before, and consumers are looking to get away from the traditional, non-recyclable packaging materials of the past. Thanks to the latest in packaging technologies, it's possible to deliver visually attractive packages that minimize waste and maintain product integrity.

[CLICK HERE TO VIEW ALL PACKAGING MATERIALS & CONTAINER COMPANIES](#)



## CUTTING & BONING EQUIPMENT

As livestock carcasses are broken down and ultimately turned into fresh cuts or further-processed items, the right cutting tools are essential. Butchery is an art, and the professionals who are able to turn a beef quarter into steaks or get every usable piece of meat off a chicken carcass are masters of the craft. Increasingly, automation is a necessary part of these operations, as the labor shortage in the meat industry has made good help very hard to find. Cutting and boning equipment refers to the traditional hand tools like knives, saws and trimmers used in breaking down both red meat and poultry carcasses. It also includes machinery such as bandsaws, skinning equipment, carcass splitters and bone cutting equipment. Accessories like cutting boards, tables and knife sharpening systems are also found in this category.

[CLICK HERE TO VIEW ALL CUTTING & BONING EQUIPMENT COMPANIES](#)



## RENDERING EQUIPMENT

One of the ways that meat processors can be more sustainable is to get as much use out of the carcasses as possible. To that end, rendering equipment is needed to help take meat-processing byproducts and turn them into stable, usable items like oil, feed supplement or tallow.

Equipment used in this process could include bone crushers, cookers, grinders, fat recovery systems and washers. Necessary supplies like pails, filters, pumps and conveyor systems are also included.

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## SLAUGHTERING EQUIPMENT

Plants that slaughter and process livestock have a number of additional regulations and responsibilities. Humane stunning is a constant worry, as inhumane treatment or mis-stuns can lead to both negative publicity and additional regulatory oversight.

The equipment needed for slaughter and first processing depends on the species being processed. However the stunning equipment needs to be effective on that particular species, and the equipment that moves the carcasses further into the plant for washing and breaking down must be ergonomically effective for the plant employees. Whether it is large cattle and pig carcasses or a long line of chicken or turkey carcasses, care must be taken to prevent employee injury through strains or repetitive motion injuries.

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## INSTRUMENTATION, COMPUTERS & CONTROLS

Technology is advancing every type of business, and the meat processing industry is not immune to the changes. Practically every piece of equipment on a processing floor has programmable controls easy enough for even the most novice of operators to run. Information is delivered to the main office in real time, so plant managers can easily keep track of how each department is operating and how the machines are running. Tracking orders, inventory management, preventative maintenance, human resources are all areas where data is easier to track than ever before.

The processing plant is affected by technology in other ways, as data loggers, temperature probes and other instrumentation can ensure all processes are being performed within specifications. In-house laboratories can provide immediate information about food safety, fat content and more.

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## SERVICES, SUPPLIES & MERCHANDISING

There are many ancillary industries associated with the meat and poultry industry. Services like used equipment vendors, food laboratories, package design firms, employment & recruiter services and equipment auction houses are frequently needed for their specialized services. Architectural and engineering companies are needed whenever a company is expanding its facility or building a new plant from scratch. Consultants can help meat companies with a wide variety of needs, from animal welfare to HACCP programs to food safety and more.

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## SHIPPING & DELIVERY

Shipping and distribution services are needed to help packaged meat products reach their final location, whether it is a retail outlet, a distribution center or a restaurant. This category can include trucks and trailers that handle the transportation, warehouses and distribution centers that hold products for further transportation, and the software and logistics services that make the whole distribution process easier.

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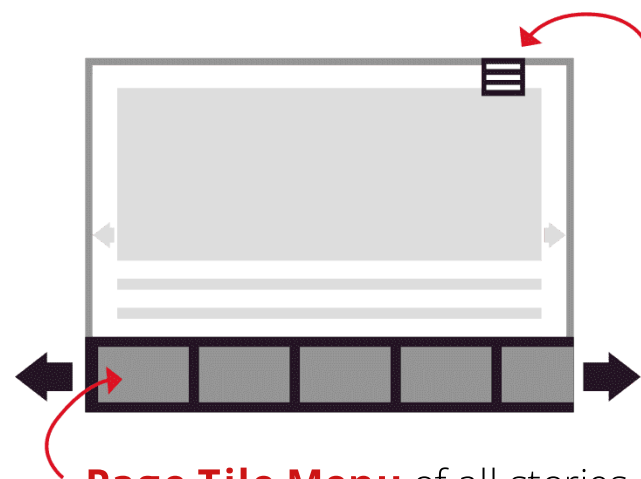
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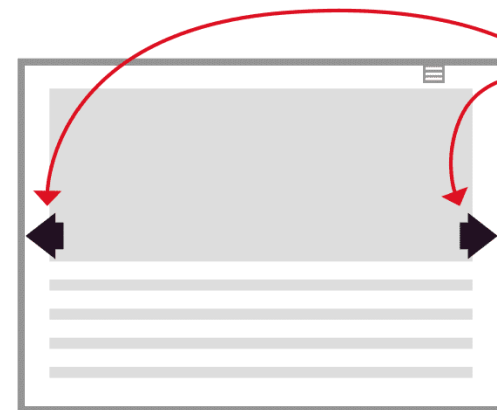
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